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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/474,359	12/29/1999	JEFF C. MORRISS	INTL-0294-US	2154

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TROP PRUNER & HU, PC
1616 S. VOSS ROAD, SUITE 750
HOUSTON, TX 77057-2631

EXAMINER	
KIM, KEVIN	
ART UNIT	PAPER NUMBER
2611	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	02/22/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	09/474,359	MORRISS, JEFF C.	
	Examiner	Art Unit	
	Kevin Y. Kim	2611	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *27 November 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *20-28,35,37 and 39-56* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *25-28* is/are allowed.

6)☒ Claim(s) *20,22-24,35,40-42,48-50 and 52-54* is/are rejected.

7)☒ Claim(s) *21,37,39,43-47,51,55 and 56* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

1. Applicant's arguments, see Remarks, filed November 27, 2006, with respect to the rejection(s) of claim(s) 48 and 52 under 35 USC 102(b) have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of newly found prior art references as set forth below.

Claim Objections

2. Claim 23 is objected to because of the following informalities: Claim 23 recites "the calibration value" which first is recited in claim 22. Thus, Claim 23 will be treated as dependent on claim 22 instead of on claim 20. Appropriate correction is required.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

5. Claims 20, 24,35,40,41 and 42 are rejected under 35 U.S.C. 102(e) as being anticipated by Buhler et al (US 6,775,344).

Claims 20, 35,40,42.

Buhler et al discloses a method comprising:

using a data bit signal (42) and a first strobe signal (48) to generate at least one pulse train signal (68,70), said at least one pulse train signal including a first pulse train signal (68) having a duty cycle that increases with an increase in a degree of skew between the data bit signal and the first strobe signal and a second pulse train signal (70) having a duty cycle that decreases with a decrease in the degree of skew (see col. 5, lines 25-37); and

regulating a timing relationship between the data bit signal and the first strobe signal based on the degree of skew indicated by the duty cycles of the first and second pulse train signals. See the strobe signal (48) is adjusted in accordance with the phase difference, i.e., skew.

Claims 24 and 41.

The data commonly includes a predetermined data pattern for synchronization.

6. Claims 48,49,52 and 53 are rejected under 35 U.S.C. 102(b) as being anticipated by Kuddes (US 5,638,410).

Claim 48.

Kuddes discloses a method comprising (see Fig.2):

using a data bit signal ($\varnothing_1$) and a first strobe signal (an input signal to the phase detector 124) to generate at least one pulse train signal representing the degree of skew the data bit signal and the first strobe signal,

regulating a timing relationship between the data bit signal and the first strobe signal based on the degree of skew indicated by the duty cycle; and

storing a calibration value indicative of the degree of skew (see A/D 128).

Fig.4A- 4D-1 shows that the signal output from the phase detector (124) is a pulse train whose duty cycle is proportional to the degree of skew, i.e., "increasing with one of an increase and a decrease in a degree of skew" and "decreasing with the other of an increase and a decrease in the degree of skew."

Claim 49.

Kuddes discloses delaying a second strobe (ø1) signal based on the calibration value to produce the first strobe signal.

Claims 52.

Kuddes discloses a skew correction circuit, comprising (see Fig.2):

a detector (124) to generate at least one pulse train signal in response to a data bit signal ($ø_1$)and a first strobe signal (an input signal to the phase detector 124) ($ø_1$) for representing the degree of skew the data bit signal and the first strobe signal,

a memory (A/D) to store an indication of the degree of skew,

a regulator (140,142) to regulate a timing relationship between the data bit signal and the first strobe signal based on the degree of skew stored in memory.

Fig.4A- 4D-1 shows that the signal output from the phase detector (124) is a pulse train whose duty cycle is proportional to the degree of skew, i.e., "increasing with one of an increase and a decrease in a degree of skew" and "decreasing with the other of an increase and a decrease in the degree of skew."

Claim 53.

Kuddes discloses the regulator comprises a delay chain (140,142) to delay a second strobe (ø1) signal based on the indication of the degree of skew stored in the memory.

Claim Rejections - 35 USC § 103

7. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

8. Claims 22, 23, 50 and 54 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kuddes in view of Buhler et al.

Kuddes describes all the subject matter claimed, as explained above, except for the pulse train signal comprises a first pulse train signal having a duty cycle that increases with an increase in the degree of skew and a second pulse signal having a duty cycle that decreases with a decrease in the degree of skew.

Buhler et al teaches a more detailed structure of a phase detector which produces wo pulse trains whose duty cycle is proportional to the phase difference, i.e., skew, in order to control the VCO. Thus, it would have been obvious to one skilled in the art at the invention was made to use the phase detector as illustrated in Fig.2 of Buhler et al for the purpose of completing the implementation of the method of Kuddess.

Allowable Subject Matter

9. Claims 21,37,39,43-47,51,55 and 56 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

10. Claims 25-28 are allowed.

Conclusion

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

US patents nos. 6269060, 6119242,5854553, 5376847,5184350,6008703,6608703 each teach a PFD generating one or more signals whose duty cycle is proportional to the phase difference.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kevin Y. Kim whose telephone number is 571-272-3039. The examiner can normally be reached on 8AM --5PM M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jay Patel can be reached on 571-272-2988. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR

system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

February 20, 2007

AU 2611

KEVIN KIM
PRIMARY PATENT EXAMINER